REMARKS

This is intended as a full and complete response to the Office Action dated July 2, 2003, having a shortened statutory period for response set to expire on October 2, 2003. Claims 1-20 are pending in the application and stand rejected. Applicants have amended claim 1 to more clearly recite aspects of the invention, and amended claims 5-7, 14 and 19 to correct matters of form not affecting the scope of the invention. Applicants have also added new claims 21-24 for consideration by the Examiner. Please reconsider the claims pending in the application for reasons discussed below.

Claims 1-20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Flanner et al.* (U.S. Patent No. 6,410,437) and *Nakane et al.* (U.S. Patent No. 4,401,745) both in view of *Liu et al.* (U.S. Patent No. 6,323,121). The Examiner states that *Flanner et al.* discloses the claimed invention except etching the second organosilicate layer to define vias therein, wherein the second organosilicate layer is etched with a hydrogen-containing fluorocarbon gas mixture selected from the group consisting of trifluormethane, difluoromethane, and fluoromethane. The Examiner states that *Liu et al.* discloses etching the second organosilicate layer with a hydrogen-containing fluorocarbon gas mixture (trifluoromethane). The Examiner, therefore, asserts that it would have been obvious "to use the etching process of *Liu et al.* to define vias of *Flanner et al.* to avoid damaging or contaminating exposed low-k dielectric layers." The Examiner also asserts that it would have been obvious to incorporate the silicon oxide etching process of *Nakane et al.* in the damascene forming process of *Flanner et al.* because "in doing so an etching pattern faithful to a resist pattern can be obtained."

Applicant respectfully traverses the rejection. *Flanner et al.* discloses a two step etching process for etching through a trench dielectric, a trench stop layer, and partially through a dielectric with a low selectivity etchant, and then etching the remainder of the dielectric with a high selectivity etchant. The low selectivity etchant comprises argon, nitrogen, and carbon tetrafluoride (CF_4), which is not a hydrogen-containing fluorocarbon. The high selectivity etchant comprises argon, nitrogen, and C_4F_8, which is

also not a hydrogen-containing fluorocarbon. (*See*, Col. 5, line 51, to Col. 6, line 15.) Therefore, *Flanner et al.* does not teach, show, or suggest a gas mixture comprising a hydrogen-containing fluorocarbon for etching an organosilicate layer, as recited in the base claims. Likewise, *Flanner et al.* does not motivate or suggest a gas mixture comprising a hydrogen-containing fluorocarbon and one or more gases selected from the group consisting of hydrogen (H_2), nitrogen (N_2), oxygen (O_2), argon (Ar), and helium (He) for etching an organosilicate layer, as recited in the base claims.

Liu et al. discloses etching nitride layers "with a gas mixture containing a fluorocarbon such as CF_4 and oxygen, while the insulative layers are etched with fluorocarbons alone, for example CHF_3 or C_4F_8." (*See Liu et al.* at col. 5, lines 14-17.) (emphasis added) Therefore, *Liu et al.* does not teach, show, or suggest a gas mixture comprising a hydrogen-containing fluorocarbon and one or more gases selected from the group consisting of hydrogen (H_2), nitrogen (N_2), oxygen (O_2), argon (Ar), and helium (He) for etching an organosilicate layer, as recited in the base claims.

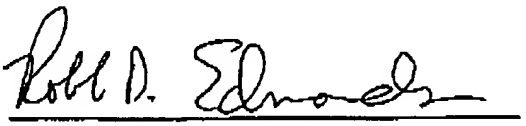
Nakane et al. discloses a composition for ultra-fine pattern formation using resists comprising at least one of acrylic and/or vinyl ketone polymers with an aromatic azide compound or an organic compound having a vinyl group. *Nakane et al.* also discloses etching an underlying dielectric material of silicon oxide, silicon nitride, or polysilicon, with a mixed gas of CF_4 and O_2 after oxygen development of a resist pattern disposed thereon. *Nakane et al.* does not disclose etching organosilicate layers or any process involving organosilicate layers. Accordingly, *Nakane et al.* does not teach, show, or suggest a gas mixture comprising a hydrogen-containing fluorocarbon and one or more gases selected from the group consisting of hydrogen (H_2), nitrogen (N_2), oxygen (O_2), argon (Ar), and helium (He) for etching an organosilicate layer, as recited in the base claims.

Therefore, none of the reference, either alone or in combination, teach, show, or suggest etching the second organosilicate layer to define vias therein, wherein the second organosilicate layer is etched with a gas mixture comprising a hydrogen-containing fluorocarbon and one or more gases selected from the group consisting of hydrogen (H_2), nitrogen (N_2), oxygen (O_2), argon (Ar), and hellum (He), as recited in the base claims as well as those dependent therefrom. Having addressed all issues set out

in the office action, Applicant respectfully submits that the claims are in condition for allowance and respectfully request that the claims be allowed.

The secondary references made of record are noted. However, it is believed that the secondary references are no more pertinent to the Applicant's disclosure than the primary references cited in the office action. Therefore, Applicant believes that a detailed discussion of the secondary references is not necessary for a full and complete response to this office action.

Respectfully submitted,



Robb D. Edmonds
Registration No. 46,681
MOSER, PATTERSON & SHERIDAN, L.L.P.
3040 Post Oak Blvd., Suite 1500
Houston, TX 77056
Telephone: (650) 330-2310
Facsimile: (650) 330-2314
Attorney for Applicants